MARSHALL STAR

Serving the Marshall Space Flight Center Community

Aug. 7, 2003

X-37 Technology Demonstrator completes structural tests

In preparation for atmospheric flight test program

by Amie Cotton

An approach and landing test version of the X-37, a spacecraft designed to demonstrate technologies for NASA's Orbital Space Plane Program, successfully completed structural testing in Huntington Beach, Calif.

The series of ground-based, proof tests are intended to verify the structural integrity of the X-37 Approach and Landing Test Vehicle. The tests apply pressure to the vehicle, simulating flight stresses and loads the X-37 may encounter in flight.

*See **X-37** on page 2*

Photo by Emmett Given, NASA/Marshall Center

Top teachers visit Marshall Center

Teachers of the year from across the nation visited the Marshall Center last week to learn more about how space exploration impacts everyday life. The visiting educators included National Teacher of the Year Dr. Betsy Rogers, second from left, of Leeds Elementary School in Jefferson County, who also is the Alabama Teacher of the Year. With Rogers, are, from left, U.S. Space & Rocket Center Chief Executive Officer Larry Capps, NASA Associate Administrator for Education Dr. Adena Loston and Marshall Director David King. See story on page 4.

Marshall Center team recreates first liquid-fueled rocket in celebration of Centennial of Flight

by Grant Thompson

A team of engineers at the Marshall Center is hard at work on a project to "recreate history" by building a pair of replicas of the world's first liquid-fueled rocket. One of them is a working version that is undergoing ground tests at the Marshall Center this summer.

The original rocket, designed and built by rocket engineering pioneer Robert H. Goddard, was first flown March 26, 1926, in Auburn, Mass. That accomplishment is considered the first step in opening the door of modern rocketry. The 10-foot rocket reached an altitude of 41 feet, while the flight lasted only 2.5 seconds.

Recreating Goddard's rocket was the brainchild of Robert Sackheim, assistant director and chief engineer for space propulsion at the Marshall Center, and John London, who is Sackheim's technical assistant. Both men were officers in the American Institute of Aeronautics and Astronautics Alabama-Mississippi Section and developed this project for AIAA to help celebrate this year's Centennial of Flight activities.

According to Sackheim, the Marshall Center was the perfect fit to take on such a challenging project due to its history and resources in propulsion. The AIAA is the world's largest professional engineering and science society.

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X-37

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"An initial review of the test data indicates that the vehicle performed as expected, and we are very pleased," said Dan Dumbacher, X-37 project manager at the Marshall Center. "Following a detailed analysis of the results the X-37 Atmospheric Vehicle will be returned to its assembly facility in Palmdale, Calif., for preparation for atmospheric flight testing.

"We are proud of the government and Boeing X-37 team for meeting the challenge and aggressively moving toward flight testing of the Approach and Landing Test Vehicle," Dumbacher said.

The Approach and Landing Test Vehicle is one of two vehicles that comprise the X-37 Advanced Technology Flight Demonstrator Project. An orbital version of the vehicle is being developed to test and validate technologies in the environment of space and will test vehicle system performance during orbital flight, reentry and landing. Technologies to be demonstrated include thermal protection systems; autonomous advanced guidance, navigation and control systems; high temperature structures; conformal reusable insulation; and high temperature seals. Both vehicles are developed by Boeing Expendable Launch Systems in Huntington Beach.

Marshall Imaging Services

The X-37 Technology Demonstrator

Atmospheric flight tests of the Approach and Landing Test Vehicle are scheduled for 2004 and flight tests of the Orbital Vehicle are scheduled for 2006.

Flight demonstrators like the X-37 have a critical role in validating technologies that cannot be demonstrated on the ground. NASA is pursuing these and other space launch technologies that will enable the Agency to achieve its goal of establishing safe, reliable and affordable access to space.

For more information, go to: http://www.ospnews.com

The writer, employed by ASRI, supports the Media Relations Department.

Shuttle Manager Bill Parsons meets with Marshall team

One NASA emphasized for Return to Flight

NASA Space Shuttle Program Manager Bill Parsons met with members of Marshall's Space Shuttle Propulsion Office last Friday.

Parsons emphasized the One-NASA approach to returning the Space Shuttle to flight status -- that communication and integration between NASA centers is paramount to a safe and successful program. He also emphasized the importance of a culture where everyone is encouraged to vocalize any concerns.

Parsons also met with team members individually and expressed his appreciation for their efforts on Return to Flight.

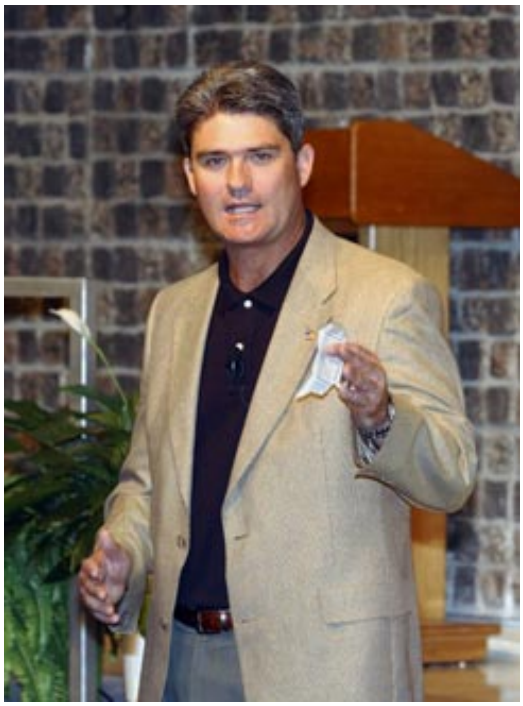

Photo by Doug Stoffer, NASA/Marshall Center

Parsons

Goddard

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"Building replicas of Goddard's first rocket has been like an archeological effort for us," said Tim Sanders, the Marshall Center's technical team leader for test area operations and acting volunteer project manager for the Goddard rocket replica team. "History is a big part of the rocket business. Becoming more aware of it keeps us from repeating some of the same mistakes of the past."

AIAA approached Sanders and his 22-member team of replica volunteers, all from Marshall's Space Transportation Directorate, late last year with the proposal to recreate Goddard's first rocket. The Space Transportation Directorate manages numerous key propulsion and flight research areas intended to dramatically improve access to space and in-space transportation. Other members of Sander's technical team included engineers Sandy Elam, Warren Peters, Paul Dumbacher, Gary Hicks, Jay Dennis and Richard Cooper.

The Marshall design team's plan has been to stay as close as possible to an authentic reconstruction of Goddard's rocket. For the working version, the same propellants will be used - liquid oxygen and gasoline - as available during Goddard's initial testing and firing. The team also is trying to construct both replicas using the original materials and design to the greatest extent possible. By purposely using less advanced techniques and materials than many that are available today, the team has encountered numerous technical challenges in testing the functional hardware." Since there were no original blueprints or drawings, all we've had to rely on are photographs and notes. It's much like piecing together a puzzle," Sanders said.

Photo by Terry Leibold, NASA/Marshall Center

The Goddard Rocket replica in the A-frame launch stand is test fired at the Marshall Center's Test Area 116 during the American Institute of Aeronautics and Astronautics' 39th Joint Propulsion Conference on July 23.

However, this faithful adherence to historical accuracy also has allowed the team to experience many of the same challenges Goddard faced 77 years ago, and more fully appreciate the genius of this extraordinary man. According to London, the work of the team represents remarkable research that is uncovering a wealth of previously unknown information about one of the greatest accomplishments in astronautics.

The team members also look at the replica project as an educational resource for those who study liquid rocketry in the future. Along with the working version, the team is creating a full-scale model to be used for exhibit and educational purposes.

"Our hope is to provide resources for students to study liquid rocketry 50 years from now, giving them an idea of the challenges Goddard faced during his time," said Rebecca Farr, a Marshall engineer who is working on the project. "Once we get things down on paper and they see the full-scale model up close, so many more people will be able to benefit from these efforts."

The Centennial of Flight is being celebrated this year with events across the country to mark the passage of a century since the Wright Brothers first took to the skies with their Wright Flyer at Kitty Hawk, N.C., Dec. 17, 1903.

For more information on Goddard and his original rocket design, go to http://www.gsfc.nasa.gov/gsfc/service/gallery/fact_sheets/general/goddard/goddard.htm.

The writer, employed by ASRI, supports the Media Relations Department.

Teachers of the year, international educators,

by Sanda Martel

The nation's top teachers from each state journeyed on a week-long space "mission" this summer, courtesy of NASA.

The teachers, chosen by their peers, arrived at the U.S. Space and Rocket Center in Huntsville July 26, and learned what it's like to live and work in space. The event was co-sponsored by the Marshall Center.

Also included in the top teachers were representatives from American Samoa, Department of Defense Education Activity, District of Columbia, Northern Mariana Islands, and the U.S. Virgin Islands.

For a week, teachers had the opportunity to become astronauts, scientists and engineers. They experienced first-hand the impact that space exploration has on everyday life and our nation's future.

Photo by Emmett Given, NASA/Marshall Center

NASA Associate Administrator for Education Dr. Adena Loston addresses educators at Teacher of the Year and International Space Camp opening ceremonies at the U.S. Space & Rocket Center.

NASA is committed to sharing its resources with our nation's classrooms, said Dr. Adena Loston, NASA associate administrator for Education.

"NASA has a responsibility to enlighten and inspire a new generation of scientists, engineers and technologists," Loston said. "Our nation needs young people to be our discoverers and explorers of tomorrow, and NASA needs them to help us explore new worlds and to improve life here on Earth. We aspire to help our educators do even better what they do so well — inspire and nurture young minds to learn and grow. Educators touch the future. By partnering with our educators we are working collaboratively to develop the talent pool that is crucial to our nation and NASA."

The teachers' schedule included lectures from scientists about space exploration, the International Space Station, the Space Shuttle and current NASA research. They also took part in a multi-faceted experience consisting of mission training, mission simulation, a water-survival aviation challenge, robotics and science demonstrations, a look at rocket construction and dozens of other events. They also toured the Marshall Center and met with Center Director David King.

Teacher of the Year winners are selected by each state's education department on the basis of nominations by students, teachers, principals, and school district administrators throughout the states. The program, which began in 1952, is considered the top honor in recognizing and rewarding teaching excellence.

"Educators have one of the world's most important jobs," said Jim Pruitt, Marshall Center manager of the Education Programs Department. "Marshall salutes their hard work and dedication to children. NASA's mission statement dedicates the Agency to "inspire the

Photo by Emmett Given, NASA/Marshall Center

Annette Kelly, Teacher of the Year from the U.S. Virgin Islands, left, and Douglas Armstrong, Virginia's Teacher of the Year, in costume during opening ceremonies.

*See **Teachers** on page 5*

experience out-of-this world training

Photo by Emmett Given, NASA/Marshall Center

Konrad Dannenberg, left, shakes hands with Christian Pronegg, a teacher from Austria, after a panel discussion featuring Marshall scientists, engineers and original members of Wernher von Braun's German rocket team.

Photo by Terry Leibold, NASA/Marshall Center

Teachers of the Year look into the International Space Station Payload Operations Center's control room at Marshall.

Photo by Terry Leibold, NASA/Marshall Center

Marshall team member Jeff Hamilton, left, briefs teachers on rocket motor development.

Photo by Emmett Given, NASA/Marshall Center

George Hopson, manager of Marshall's Space Shuttle Main Engine Projects Office, demonstrates the flight of the Skylab Orbital Workshop to teachers during a discussion on the history of the space program.

Teachers

Continued from page 4

next generation of explorers, and we believe that partnering with teachers is vital to this element," Pruitt said.

Several international educators, including those from Norway, Australia, Argentina, Great Britain, Austria, Hungary and Germany also participated in activities during the week at the U.S. Space & Rocket Center's International Space Camp, which included panel discussions with Marshall scientists and engineers as well as with original members of Wernher von Braun's rocket team.

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Bargaining unit changes in effect at Marshall

from the Human Resources Department

On July 14, the Marshall Center and its two labor organizations — the Marshall Engineers and Scientists Association, International Federation of Professional and Technical Engineers, Local 27 (MESA), and the American Federation of Government Employees, Local 3434 (AFGE) — signed an agreement to expand the coverage of their respective bargaining units to include most Marshall team leader positions.

A bargaining unit is a group of employees represented by a labor organization on matters affecting their working conditions. Examples of working conditions are physical moves, safety and health, time and attendance and reorganizations.

The effect of this agreement is that team leaders are now covered by provisions of one of the two Marshall Center labor contracts and have the opportunity for union representation on matters affecting their working conditions.

MESA represents team leaders who are scientists and engineers such as those in NASA Class Codes 700 and 200. AFGE represents team leaders in basically all other classification categories – business professionals and technicians.

A small number of Marshall team-lead positions remain excluded from a bargaining unit by law — such as human resources and security positions, among others. Other team-lead positions remain excluded, such as accountants, because they have not chosen to be represented by a union.

Team leaders are free to become union officials and to represent other bargaining unit employees. However, inclusion in a bargaining unit does not mean team leaders are automatically members of one of the labor unions. It also does not mean they are required to join the union or pay dues to them. The decision to join or not to join the union is still the choice of a team leader.

In the agreement, the Marshall Center and the labor unions recognized the important leadership role that team leaders have at the Center and agreed that team leaders are still considered a part of the Marshall management team in day-to-day operations.

Both labor contracts are available at: http://hrd.msfc.nasa.gov/labor.html

Job Announcements

MS03N0161, AST, Aerospace Flight Systems. GS-0861-14, Flight Systems Department, Pressurized Carriers Group. Closes Aug. 8. Contact: Carolyn Lundy at 544-4049.

MS03C0156, Facilities Support Specialist. GS-0301-05, Center Operations Directorate, Facilities Engineering Department. Closes Aug. 14. Contact: Dana Blaine at 544-7514.

NASA chooses EG&G as services provider at Marshall

Process improvements under way

from the Logistics Services Department

The Marshall Center has selected EG&G Technical Services, Inc. of Gaithersburg, Md., for an order under a General Services Administration contract to provide institutional services.

Services under the contract will be performed at Marshall facilities from Aug. 1, 2003-July 31, 2006. If NASA awards all options, work could continue until March 31, 2011. Work under the order includes environmental services, mail distribution, equipment maintenance and repair, motor pool services, and property management support -- warehousing, supply, inventory, shipping, receiving, handling flight hardware, property disposal, move operations and food services.

The new contract brings process improvements and innovations that include:

• The Supply System (sub store) being upgraded to a cutting-edge retail store located in the old fitness center, Bldg. 4752. Commodities will be vendor-owned until procured by customers. The retail store will open Sept. 2.

• Implementation of reliability-centered maintenance including special-purpose, research, development, test and evaluation equipment.

• Development of the Logistics Services Work Control system allowing task tracking and streamlined ordering. Customers will be able to order 39 additional Logistics and Environmental Services via One-Stop Shop on "Inside Marshall." This upgrade will be available Aug. 11.

• Implementations of Chemical Pharmacy through Just-In-Time ordering through the retail store to allow tracking of chemicals from procurement through disposal.

• Implementation of pre- and post-move inspections, which will ensure customer requirements are understood and met.

Additional information will be available in coming weeks.

Correction

Rosemary S. Finley received a NASA Exceptional Service Medal at Honor Award ceremonies last week at the Marshall Center. She was incorrectly identified in a photo submitted for the July 31 edition of the Marshall Star.

Rosemary S. Finley, TD10

Center Announcements

Chandra X-ray Observatory Symposium set for September

The Chandra X-ray Observatory Program will host a three-day symposium Sept. 16-18 at the Huntsville Marriott. For more information, go to http://mi.msfc.nasa.gov/chandra/index.html or call 544-5468 or 544-0570.

HOPE Place golf tournament will be Aug. 23

The HOPE Place Classic golf tournament to benefit victims of domestic violence will be at 8 a.m. Aug. 23 at both the Highland and River golf courses at Hampton Cove. Cost is $150 per player for the four-person scramble tournament or $600 per team. For more information, call Sharon Tyson at 885-1739.

NASA Ski Week set for January 2004

The 13th annual NASA Ski Week will be in Steamboat, Colo., Jan. 24-31, 2004. Skiers from nine NASA centers will participate in winter sports and camaraderie at the 3,000-acre resort. All Marshall team members, retirees and family members, are eligible to participate. For more information, call 233-0705 or e-mail tom.dollman@nasa.gov.

Proposal production assistance available

The Center Operations Directorate's Proposal Production Team (PPT) is available for assistance in preparing proposals. The PPT can schedule coordination, guidelines, text editing, figure and table production, layout, camera-ready art and coordinate printed products. For more information, go to http://co.msfc.nasa.gov/ad03/graphics/proposal.html or call 544-4852, 544-4580 or 544-4741. The PPT is in Bldg. 4200, Room G-28.

SEE Program to host Spacecraft Charging Technology Conference

NASA's Space Environments & Effects Program will host the eighth Spacecraft Charging Technology Conference Oct. 20-24 in Huntsville. The conference is an international forum to present and discuss spacecraft charging issues and mitigation techniques. The conference is co-sponsored by NASA, the U.S. Air Force Research Lab, the European Space Agency and NASA's Space Environments & Effects program at the Marshall Center. Registration is limited. For more information, go to http://see.msfc.nasa.gov/sctc.

Spacecraft Preliminary Design course set for September

A three-day Spacecraft Preliminary Design course will be taught Sept. 15-17 by Dr. Wiley Laron and Tom Sarafin at the Marshall Center. Marshall team members interested in attending should submit a Form 59 to CD20 by Aug. 27. For more information, go to www.instarengineering .com/uss.cfm or call 544-1164.

Marshall Association luncheon reservations available

The Marshall Association will host its monthly luncheon at 11:30 a.m. Aug. 28 at the Center Activities Bldg. 4316. Marshall Deputy Director Rex Geveden will speak. Cost is $9, payable at the door, but reservations are required. For reservations, call Cliff Bailey at 544-5482.

Women's Equality Day program will be Aug. 26

The Women's Equality Day program will be at 10 a.m. Aug. 26 in the Bob Jones Auditorium at the Sparkman Center on Redstone Arsenal. Marta Brito Perez of the federal Office of Personnel Management will speak. The Marshall Center's Outstanding Women Achievers also will be recognized.

MARS Co-ed Volleyball Club to hold organizational meeting

The MARS Co-ed Volleyball Club will hold its pre-season organizational meeting at noon Aug. 14 at the Exchange Health Club. Returning teams, new teams and individuals interested in participating are invited to attend. The season will begin in early September and end in November just before Thanksgiving.

Marshall Service Request System unavailable Friday-Sunday

The Marshall Service Request System will be unavailable from 5 p.m. Friday-5 p.m. Sunday. New service categories will be available beginning Monday.

Science Directorate Appreciation Day reset for Sept. 23

The Science Directorate's Employee Appreciation Day will be at 9 a.m. Sept. 23 at Redstone Arsenal's Rustic Lodge. The event was rescheduled from its original June 26 date. For more information, call Suzy Hartman at 544-6592.

NASA Strategic Human Capital Plan information available

All civil service employees will receive information on the NASA Strategic Human Capital Plan, which establishes a systematic, NASA-wide approach to human capital management aligned with the Agency's mission and vision. Supervisors and employees at Marshall should become familiar with the plan. For information, go to http://nasapeople.nasa.gov/hcm/.

Vacation specials available for Marshall team members

Executive Tour and Travel Services Inc., is offering $99 vacation getaways to more than 20 destinations for Marshall civil servants, retirees, contractors and their families. The price includes three days and two nights hotel accommodation for two adults and up to two children age 12 or under. Hotel tax is not included in the price. A deposit of $99 plus $6 for shipping and handling must be made by Aug. 28. Travel dates are good through August 2004. For more information, call Candy Kelley at 544-7565 or pick up a flyer at the Space Shop in Bldg. 4203.

Classified Ads

Miscellaneous

★ Hofner Club bass guitar. No. 85 of 100 handmade in Germany. Case, papers. $1,850. 306-0700
★ Compaq Presario laptop, 850MHZ, 56K Modem, 24XCDROM, 10.0GB, carrying case, 1J650 printer, $950. 256-881-3661
★ Camera bag, $75. 722-9272
★ Kosta Bota glass vase, round, contemporary design; Italian Murono pink glass vase. 882-6832
★ N64 Pokemon Snap, $15. 533-5942
★ Guitar Amp Laney Pro Tube 50, $400. 256-739-9775
★ Doberman female puppies, 8 weeks old, some red, some black, $75 each. 881-3035
★ Tennis ball machine, new, Lobster, portable w/remote control, 200 balls. 772-8744
★ Sailboat, Newport Kite; 12', double-hull fiberglass, self-rescuing, self-bailing cockpit, trailer included, $1,200. 881-2435
★ Executive desk, antique bottom, new top, $300. 539-3166
★ Walnut inlaid coffee table, oval, 42.29, $150. 883-2237
★ 1996 Suzuki King Quad, 300cc, 4x4, new tires, brush guard, $2,000. 508-9955
★ Go-Cart, 2-seater w.5HP engine, $195. 683-9364
★ Pine trees, cut down and trimmed, for pole building or boards. 881-6040
★ Antique organ w/electric blower, $1,000; Dining set: six-chairs, dishes, hutch, $500; Coffee table, $80. 864-0155
★ Window air conditioner, 4000 BTU, 110VAC, $35. 880-6146
★ Whirlpool range, free-standing, self-cleaning, harvest gold w/black glass front, $35. 883-2757
★ Maytag dryer, $95; Kenmore Washer, $100. 837-6649
★ Buffet, Model E11, wood clarinet, accessories included, used 1 year, $500. 230-0888
★ Casio keyboard, stand, foot pedal, $30; adjustable weight bench and weights, $20. 256-881-2246
★ Trek 460 bicycle, road bike w/air pump & water bottle bracket, red/yellow, $100. 881-3787
★ Surround Air XJ2000 ionizer, unused, $50; 40-gallon electric water heater, $30; propane tank, $25. 828-6213
★ Chain link dog pen, galv. w/gate, 6'x8'x4', $60; dog cage, 30"x48"x30', collapsible, $30. 883-0568
★ 1996 Sea Doo XP, moving, must sell, $4,000. 256-572-1197
★ Gemeinhardt flute, Model 30, $500. 881-1497
★ 1989 Kawasaki motorcycle, 12K miles, new tires, custom paint, saddlebags, garage kept, $3,500. 256-828-7013
★ Antique electric Singer sewing machine in cabinet, needs repair, $50. 885-2005
★ Washer and dryer, both work, $150. 256-587-0256
★ Antique Cherry dining table and six chairs, including two arm chairs, $700. 353-0907
★ Used 17" monitors, $50 each; chrome tubular steps for Dodge extended cab, $150 set. 508-4503
★ Toddler bed w/bedding & valances, Noah's Ark; Little boys fall/winter clothes, sizes 4/5, casual/dress. 350-2927
Pair of Klipsch Forte' speakers, walnut; NordicTrac Walkfit treadmill; Singer sewing machine w/cabinet. 882-9370
★ Apple Powermac 6100, 800MB HD, 40MB Ram, refurbished w/clean system install/MS Office, $100. 885-1640
★ Lawn mowers: Craftsman, $50; Murray,$70; Murray, $50; McCulloch weed eater, $50. 883-6284
★ Air compressor, 3.5HP, 11-gal., $150; Glass patio table, new, $50; mesh dinning tent, $25. 837-6776

Vehicles

★ 2002 Ford Escape XLT, 4x4, 16K, auto, loaded six CD, leather, tow pkg., $18,500. 830-1844
★ 1983 S15 Jimmy, V6, auto, fresh engine and transmission, $1,500. 882-0055/527-9073
★ 1995 GMC Serria Z71, extended cab, garage kept. 931-937-6518
★ 1996 Ford Contour, 93K miles, 4-door, automatic, one-owner, $3,000. 461-9861
★ 1995 Ford Explorer, Eddie Bauer, leather, ABS, alloy, 113K miles, CD-Alpine, privacy glass, $5,985. 880-6563
★ 1990 Acura Integra GS, 4-cyl., 5-speed, cruise, power windows/locks, AM/FM stereo/cassette, 186K miles, $1,750. 679-3576/256-539-4055
★ 1997 Nissan Maxima-SE Sports sedan, 4-door, 82K miles, white, alloy rims, automatic, AM/FM/CD, $9,790. 881-8674
★ 1997 Ford Windstar, 70K miles, dual air, 3.8L engine, PW/PL, $4,900. 881-3612
★ 2000 Jeep Cherokee Limited, Michelin tires, new Die-Hard battery, loaded, 103K miles, $6,500. 256-350-5836
★ 1996 Toyota 4-Runner, 2WD, auto, AM/FM/cassette/CD, tan, running boards, P/L, 130K miles, 4-cylinder, $4,700. 880-9025
★ 2000 Windstar van, silver, low mileage, loaded. 679-1923

Free

★ Chocolate Lab, female, registered, friendly, 2-years old. 325-6000

Found

★ Pocket knife at ED awards ceremony. Call 722-0417 to identify
★ Glasses/prescription in Bldg. 4202 Lobby. Call 544-3623 to claim/identify

Wanted

★ Interested in establishing carpool from Lynchburg, TN, non-smokers only, hours 7 a.m.-3:30 p.m. 544-2625
★ Cue stick holder, sits on floor, holds 6-8, billiard light, other game room pieces. 256-974-5560
★ Similac coupons. 256-653-9823
★ To rent/purchase an automobile carrier (trailer), heavy duty, to transport 60's 4-door Pontiac. 797-7829
★ Mini Coopers needed for independent film to be shot in Madison. 722-2821

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